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St. ex Peck), but is entirely destitute of spots. The specimen which afforded the foundation on which it was inserted in the Catalogue of Maine Fishes was obtained by Dr. Stimpson several years ago.

The subclass of Elasmobranchiates has not been yet treated of in Dr. Storer's "History." Since the publication of his "Report," he has added several species of great interest. The species enumerated in the Report are the following:

*Carcharias vulpes* = *Alopias vulpes* Bon.

*Lamna punctata* = *Isuropsis* Dekayi Gill, (not *Sg. punctatus* Mit.)

*Spinax acanthias* = *Acanthias americanus* St. = *Squalus americanus* Gill.

*Somniosus brevipinna* Les.

*Raia batis* = *Rara lævi* Mitchill.

*Carcharias obscurus*\* = *Eulamia cœrulea* Gill.

To these were subsequently added:

1. CESTRACION ZYGÆNA Gill = *Zygæna malleus* St. Boston, Jour. Nat. Hist., iv. 185, = *Zygæna subarcuatus* St. op. cit. iii. 71.
2. TRYGON CENTROURA (Storer, op. cit. iv. 186.
3. MYLIOBATUS BISPINOSUS Storer, op. cit. iv. 187.
4. TETRONARCE OCCIDENTALIS Gill = *Torpedo occidentalis* Storer, Am. Jour. Sc. v. Arts, xlv. 165.
5. MUSTELUS CANIS Storer, Syn. Fishes N. A., p. 253 Mem. Am. Ac. ii. 505.
6. EUGOMPHODUS LITTORALIS Gill, = *Carcharias griseus* St., Proc. Boston Soc. ii., 1846, p. 256, = *Odontaspis*? sp. Desor op. cit. ii., 1847, p. 264.
7. GALROCERDO? sp. = *CARCHARIAS ATWOODI* St., op. cit. iii., 1848, p. 72.

#### Note on the species of *SEBASTES* of the Eastern coast of North America.

BY THEODORE GILL.

Cuvier and Valenciennes, fully describing and figuring the *Sebastes norvegicus* as the type of the genus *Sebastes*, attribute to it a height at the pectorals contained rather less than three times and a half in the length, a head forming a third of the length, and an eye equalling a quarter of the head's length. The rays of the dorsal fin were XV. 15; of the anal, III. 8. The color was said to be uniform reddish, with a blackish spot towards the angle of the operculum. "This description was based on individuals from Norway and Newfoundland, which did not appear to differ in form."† Remembering how cautions those great naturalists were in identifying species from distant localities, there can scarcely remain any doubt that they had specimens of the true *Sebastes norvegicus* from Newfoundland. Since that period, its existence in Greenland, previously signalized by Fabricius, has been confirmed by Reinhardt and Günther. The *Perca norvegica* of Fabricius, and *Sebastes norvegicus* of Cuv. and Val., Richardson, Reinhardt, and Günther, are therefore without doubt the same as the species of Norway.

But in 1839, Dr. Storer, in his Report, described under the name of *Sebastes norvegicus*, a specimen whose head, "from tip of lower jaw when closed to posterior angle of operculum," equalled a third of the length, and whose very large eye had a diameter "equal to one-third the length of head."

Dekay evidently borrowed his description and figure of *Sebastes norvegicus* from the Histoire naturelle, and remarked that "this is a rare fish in our waters. It is called, by our fishermen, *Red Sea Perch*, and they say it is only

\* Teeth above "in the middle of the jaw, one inch and two lines high, and one inch wide at their base;" "in the lower jaw, similar in their form and number, but smaller than those in the upper jaw."

† Hist. Nat. des Poissons, iv. p. 333.

found in deep water." "The coast of New York is probably its extreme southern limit." Such are the only remarks relating to the species as an inhabitant of the waters of New York. As Dekay's knowledge of its characters embodied in his work has been simply derived from Cuvier and Valenciennes, his testimony is useless in establishing the species as an American fish.

Dr. Storer, in his illustrated "History of the Fishes of Massachusetts," has redescribed the species noticed in the Report, and given a figure of it. That figure confirms his description of the size of the eyes, and exhibits great difference from that given by Cuvier of the true *Sebastes norvegicus*. Besides the larger eyes, it is evident that Storer's fish has a higher and shorter body, longer pectoral and ventral fins, a more elevated spinous dorsal, better armed head, &c., than the typical *S. norvegicus*. It therefore undoubtedly belongs to a different species, and that one is probably the *S. viviparus* of Kroyer.

Dr. Kroyer, in the "Naturhistorisk Tidsskrift" for 1844, published an article on the northern species of *Sebastes*, and gave a description of a new species under the name of *S. viviparus*. As the periodical in which this description was published is in few American libraries, the following abstract will be especially acceptable. The characters of *S. norvegicus*, taken from the same author, have been contrasted with those of *S. viviparus*.

#### SEBASTES VIVIPARUS Kroyer.\*

Color† subaurantiacus, macula magna operculi nigricante (sæpe maculis corporis fuscis, interdum totus fuscus vel nigricans). Caput tertiam ferme æquat longitudinis partem, altitudinemque parum superat. Diameter oculi longitudinalis latitudinem frontis inter oculos multo [in *Norv. parum*] superat, æquat vero rostri longitudinem [in *Norv. multo est minor*], tertiam [in *Norv. quartam*] ferme longitudinis capitis partem, 9 am—10 amve [in *Norv. 12 mam—13 mam*] totius longitudinis partem, et  $\frac{2}{3}$  [in *Norv. dimidiam*] longitudinis a margine orbitæ posteriori ad marginem operculi posteriorem. Pinnæ pectorales quartam ferme complent longitudinis partem [in *Norv. breviores*] et pone marginem ani posteriorem extenduntur [in *Norv. haud attingunt*]; pinnæ ventrales quintam fere [in *Norv. sextam circiter*] longitudinis partem æquant. Longitudo piscis novem pollices raro superat [in *Norv. sesquipedalis et ultra*]. Numerus radiorum.

P. D. XV. 13 (13-14). A. III. 7 (6-8) C. 15. P. 18 (17-18).

P. D. XV. 15. A. III. 8. C. 15. P. 19 (in *Norv.*)

On comparison of the characters of the common *Sebastes* of Massachusetts, Maine and Nova Scotia with the preceding description, it is found that the latter is quite applicable to that species, as regards color, size of head, height, size of eye, &c., extent of pectoral and ventral fins, the size which the species attains, and finally the number of its rays. It is only necessary to add that, in addition to the opercular, there is found a large spot between the posterior half of the dorsal fin and the lateral line, and frequently another, less distinct, on the side, which are doubtless the ones alluded to by Kroyer in the phrase, "*sæpe maculis corporis fuscis*." The number of soft rays, as stated by Kroyer, is most frequently thirteen in the dorsal and seven in the anal fins. The following variation was found in thirty specimens selected from those preserved in the Smithsonian Institution.

In one,	D. XV. 12.	A. III. 7.
" two,	D. XV. 13.	A. III. 8.
" thirteen,	D. XV. 13.	A. III. 7.
" ten,	D. XV. 14.	A. III. 7.
" one,	D. XV. 14.	A. III. 8.
" two,	D. XV. 15.	A. III. 7.
" one,	D. XVI. 13.	A. III. 7.

\* Kroyer Naturhistorisk Tidsskrift, ser. ii. vol. i. (1844-5), p. 28.

† Color (in *S. norvegicus*) aurantiacus, nullis maculis distinctis; etiam lingua et fauces aurantia; ; membrana branchiostega intus colore matris perlarum.

The presence of fifteen dorsal rays or eight anal rays is an exceptional character.

As the *Sebastes norvegicus* of Storer thus agrees in all respects with the description by Kroyer of his *S. viviparus*, there can be little doubt that it really belongs to that species. At the same time, it must be remembered that the latter has not been recorded as an inhabitant of Greenland; and as the Ichthyology of that country is even better known than that of the United States, it will be at least desirable to confirm the identification of our species with *S. viviparus* through the comparison of typical specimens.

Although it has been demonstrated that the species referred by the American zoologists to *S. norvegicus* does not belong to that species, it is nevertheless probable that the latter really does inhabit our coasts. I have been informed by Dr. Stimpson that the common species is found in comparatively shallow water, while another larger species of a fine red color, called *Rose-fish*, is found in deep water; but among the very numerous specimens of *Sebastes* seen by me, no example of such a form has been detected.

Finally, Dr. Storer\* has briefly noticed a fish under the name of *Sebastes fasciatus*, in the following terms:

"Body elongated, not convex in front of dorsal fin, as in the *Sebastes norvegicus*. Four distinct dark, brown, transverse bands upon the sides, the broadest at the posterior portion of the body. Length  $3\frac{1}{2}$  inches.

"Fin rays as follows: D. 13—14. P. 20. V. I. 5. A. III. 3—7. C. 19."

The species was discovered by "Captain N. E. Atwood, of Provincetown, and found in the harbor of that place."

This is the only information we have regarding that species. It has been stated to me by an able ichthyologist that it was only the young of *S. norvegicus* (i. e. *S. viviparus*), but on applying to Dr. Storer, he has written that the number of rays given in his description is correct. Such being the case, it is scarcely possible that the preceding statement can be correct; and it would rather indicate that the "new species" belonged to the genus *Sebastichthys*, but too little is known of it to admit it in the system as a valid species.

It has thus been established:

1st. That the *Sebastes norvegicus* Cuv. et Val. has not yet been confirmed as an inhabitant of the New England coast.

2d. That the species referred to under that name by American ichthyologists, is the *S. viviparus* of Kroyer or an extremely closely related species.

It may be hoped that some one of the numerous ichthyologists of Massachusetts will confirm the right of *S. norvegicus* to be considered as an American fish, and at the same time settle the relations of the *S. fasciatus*.

#### Dec. 1st.

MR. VAUX, Vice-President, in the Chair.

Nineteen members present.

A letter was read from Mr. William Short, Louisville, Ky., Nov. 20th, placing at the disposal of the Academy the herbarium of the late distinguished botanist, Professor Charles W. Short, of that city.

The following resolutions were offered and unanimously adopted:

*Resolved*, That the thanks of the Academy be tendered to the family of the late Dr. Charles W. Short, of Louisville, Ky., for the exceedingly valuable donation of his herbarium, announced this evening.

*Resolved*, that the thanks of the Academy be tendered to Prof. Asa

\* Storer, Proc. Boston Soc. Nat. Hist., vol. v. p. 31, 1854.